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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/804,822	03/19/2004	Lawrence W. Stanton	135/003P	7106
22869	7590	05/21/2008		
GERON CORPORATION 230 CONSTITUTION DRIVE MENLO PARK, CA 94025			EXAMINER CHEN, SHIN LIN	
			ART UNIT 1632	PAPER NUMBER
			MAIL DATE 05/21/2008	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/804,822

Applicant(s)

STANTON ET AL.

Examiner

Shin-Lin Chen

Art Unit

1632

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 March 2008.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-28 is/are pending in the application.
4a) Of the above claim(s) 22 and 23 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 21 and 24-28 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/5508)
Paper No(s)/Mail Date 3-12-08
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Applicants' remark filed on 3-12-08 has been entered. Claims 21-28 are pending.
Claims 21 and 24-28 are under consideration.

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 21 and 24-28 remain rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention and is repeated for the reasons set forth in the preceding Official action mailed 10-12-07. Applicant's arguments filed 3-12-08 have been fully considered but they are not persuasive.

Applicants cite reference Economou and argue that mRNA expression level of human PODXL in human glomerular epithelial cells corresponds to protein expression level of human PODXL in human glomerular epithelial cells. Both mRNA and protein levels of human PODXL are highest when the human glomerular epithelial cells are grown on laminin substrate (amendment, p. 2-3). This is not found persuasive because of the reasons set forth in the preceding Official action mailed 10-12-07. It appears that the glomerular epithelial cells discussed by Economou are adult somatic cells, which is different from human embryonic stem cells. Different type of cells and differentiation state could have diverse correlation between

mRNA and protein expression levels. The correlation of mRNA and protein expression levels in human glomerular epithelial cells can not be extrapolated into the correlation between mRNA and protein expression level in human embryonic stem cells. Absent specific evidence, one skilled in the art at the time of the invention would not know whether protein expression level of PODXL in human embryonic stem cells would correlate to mRNA expression level of PODXL in human embryonic stem cells.

Applicants argue that the cited Hara reference in previous response demonstrates that mRNA level of murine homolog of PDXL correlates well with protein expression and the reference Spence cited by Examiner concerns yeast, which is much more distant from human as compared to mice. Applicants further argue that Spence merely indicates that total cellular mRNA has no correlation to the expression level of a specific protein and reference Spence has no relevance to whether mRNA expression level of PDXL correlates to protein expression level of PDXL (amendment, p. 3). This is not found persuasive because of the reasons set forth in the preceding Official action mailed 10-12-07. It was well known in the art that mRNA expression level of a specific gene does not necessarily correlate to protein expression level of said gene. The cited reference Spence provides evidence that such notion is true in general. It is true in yeast gene expression and it is also true in mammalian gene expression. Spence points out that “[I]n the majority of publications, total mRNA is analyzed, which does not reflect the level of translation of a given transcript”. It appears that it is no uncommon that mRNA expression level does not reflect protein expression level. When total mRNA level does not correlate to protein level, it is conceivable that cDNA level also would not correlate to protein level. Further, Hara reference discloses that PCLP1 mRNA is detected in kidney, heart, lung, brain, and muscle, but

not in spleen, thymus, small intestine, or liver of adult mice (e.g. bridging p. 568 and 569). Hara shows PCLP1 protein expression in aorta-gonad-mesonephros (AGM) endothelial-like cells by immunostaining with anti-PCLP1 antibody (e.g. p. 569, right column). Expression of PCLP1 mRNA in kidney, heart, lung, brain, and muscle of adult mice does not correlate to expression of PCLP1 protein in AGM endothelial-like cells, which are precursors of hematopoietic stem cells. Hara fails to correlate PCLP1 mRNA expression to PCLP1 protein expression in mouse embryonic stem cells during different differentiated states. Thus, there still lacks a correlation between protein expression level of PODXL and mRNA expression level of PODXL in human embryonic stem cells among different differentiated states.

Applicants argue that PDXL levels will change as long as undifferentiated hES cells are differentiating, therefore, the organ culture is enabled (amendment, p. 4). This is not found persuasive because of the reasons set forth in the preceding Official action mailed 10-12-07 and the reasons set forth above. Tissue or organ culture comprises not only human ES cells but also various other cells that interact with the human ES cells and such interaction could change the gene and protein expression of the human ES cells in said tissue or organ culture. The specification fails to provide adequate guidance and evidence that whether a decrease in PODXL protein expression level under the presence of a differentiating agent would be indicative of more undifferentiated cells in the tissue or organ culture. Thus, the claims remain rejected under 35 U.S.C. 112 first paragraph.

Conclusion

No claim is allowed.

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shin-Lin Chen whose telephone number is (571) 272-0726. The examiner can normally be reached on Monday to Friday from 9:30 am to 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Paras can be reached on (571) 272-4517. The fax phone number for this group is (571) 273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to (571) 272-0547.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of

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the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public.

For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

Shin-Lin Chen, Ph.D.

/Shin-Lin Chen/

Primary Examiner, Art Unit 1632